SEQUENCE LISTING

<110> Rieping, Mechthild

<120> A process for producing L-amino acids using strains of the Enterobacteriaceae family

<130> 7909/81000

<140> US/10/812,315
<141> 2004-03-30

<160> 4

<170> PatentIn version 3.1

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cacaatctag ataaaccata ttggagggca tc 32

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<212> DNA
<213> Escherichia coli

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1 5

ggg cgg tca aac aag gca atg acg ttt ttc gtc tgc ttc ctt gcc gct 101
Gly Arg Ser Asn Lys Ala Met Thr Phe Phe Val Cys Phe Leu Ala Ala
10 15 20

ctg gcg gga tta ctc ttt ggc ctg gat atc ggt gta att gct ggc gca 149
Leu Ala Gly Leu Leu Phe Gly Leu Asp Ile Gly Val Ile Ala Gly Ala
25 30 35

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ctg ccg ttt att gca gat gaa ttc cag att act tcg cac acg caa gaa      197
Leu Pro Phe Ile Ala Asp Glu Phe Gln Ile Thr Ser His Thr Gln Glu
40                  45                  50                  55

tgg gtc gta agc tcc atg atg ttc ggt gcg gca gtc ggt gcg gtg ggc      245
Trp Val Val Ser Ser Met Met Phe Gly Ala Ala Val Gly Ala Val Gly
                60                  65                  70

agc ggc tgg ctc tcc ttt aaa ctc ggg cgc aaa aag agc ctg atg atc      293
Ser Gly Trp Leu Ser Phe Lys Leu Gly Arg Lys Lys Ser Leu Met Ile
            75                  80                  85

ggc gca att ttg ttt gtt gcc ggt tcg ctg ttc tct gcg gct gcg cca      341
Gly Ala Ile Leu Phe Val Ala Gly Ser Leu Phe Ser Ala Ala Ala Pro
        90                  95                  100

aac gtt gaa gta ctg att ctt tcc cgc gtt cta ctg ggg ctg gcg gtg      389
Asn Val Glu Val Leu Ile Leu Ser Arg Val Leu Leu Gly Leu Ala Val
    105                 110                 115

ggt gtg gcc tct tat acc gca ccg ctg tac ctc tct gaa att gcg ccg      437
Gly Val Ala Ser Tyr Thr Ala Pro Leu Tyr Leu Ser Glu Ile Ala Pro
120                 125                 130                 135

gaa aaa att cgt ggc agt atg atc tcg atg tat cag ttg atg atc act      485
Glu Lys Ile Arg Gly Ser Met Ile Ser Met Tyr Gln Leu Met Ile Thr
                140                 145                 150

atc ggg atc ctc ggt gct tat ctt tct gat acc gcc ttc agc tac acc      533
Ile Gly Ile Leu Gly Ala Tyr Leu Ser Asp Thr Ala Phe Ser Tyr Thr
            155                 160                 165

ggt gca tgg cgc tgg atg ctg ggt gtg att atc atc ccg gca att ttg      581
Gly Ala Trp Arg Trp Met Leu Gly Val Ile Ile Ile Pro Ala Ile Leu
        170                 175                 180

ctg ctg att ggt gtc ttc ttc ctg cca gac agc cca cgt tgg ttt gcc      629
Leu Leu Ile Gly Val Phe Phe Leu Pro Asp Ser Pro Arg Trp Phe Ala
    185                 190                 195

gcc aaa cgc cgt ttt gtt gat gcc gaa cgc gtg ctg cta cgc ctg cgt      677
Ala Lys Arg Arg Phe Val Asp Ala Glu Arg Val Leu Leu Arg Leu Arg
200                 205                 210                 215

gac acc agc gcg gaa gcg aaa cgc gaa ctg gat gaa atc cgt gaa agt      725
Asp Thr Ser Ala Glu Ala Lys Arg Glu Leu Asp Glu Ile Arg Glu Ser
                220                 225                 230

ttg cag gtt aaa cag agt ggc tgg gcg ctg ttt aaa gag aac agc aac      773
Leu Gln Val Lys Gln Ser Gly Trp Ala Leu Phe Lys Glu Asn Ser Asn
            235                 240                 245

ttc cgc cgc gcg gtg ttc ctt ggc gta ctg ttg cag gta atg cag caa      821
Phe Arg Arg Ala Val Phe Leu Gly Val Leu Leu Gln Val Met Gln Gln
        250                 255                 260

ttc acc ggg atg aac gtc atc atg tat tac gcg ccg aaa atc ttc gaa      869
Phe Thr Gly Met Asn Val Ile Met Tyr Tyr Ala Pro Lys Ile Phe Glu
    265                 270                 275

ctg gcg ggt tat acc aac act acc gag caa atg tgg ggg acc gtg att      917
Leu Ala Gly Tyr Thr Asn Thr Thr Glu Gln Met Trp Gly Thr Val Ile
280                 285                 290                 295
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gtc ggc ctg acc aac gta ctt gcc acc ttt atc gca atc ggc ctt gtt      965
Val Gly Leu Thr Asn Val Leu Ala Thr Phe Ile Ala Ile Gly Leu Val
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gac cgc tgg gga cgt aaa cca acg cta acg ctg ggc ttc ctg gtg atg     1013
Asp Arg Trp Gly Arg Lys Pro Thr Leu Thr Leu Gly Phe Leu Val Met
            315                 320                 325

gct gct ggc atg ggc gta ctc ggt aca atg atg cat atc ggt att cac     1061
Ala Ala Gly Met Gly Val Leu Gly Thr Met Met His Ile Gly Ile His
        330                 335                 340

tct ccg tcg gcg cag tat ttc gcc atc gcc atg ctg ctg atg ttt att     1109
Ser Pro Ser Ala Gln Tyr Phe Ala Ile Ala Met Leu Leu Met Phe Ile
    345                 350                 355

gtc ggt ttt gcc atg agt gcc ggt ccg ctg att tgg gta ctg tgc tcc     1157
Val Gly Phe Ala Met Ser Ala Gly Pro Leu Ile Trp Val Leu Cys Ser
360                 365                 370                 375

gaa att cag ccg ctg aaa ggc cgc gat ttt ggc atc acc tgc tcc act     1205
Glu Ile Gln Pro Leu Lys Gly Arg Asp Phe Gly Ile Thr Cys Ser Thr
                380                 385                 390

gcc acc aac tgg att gcc aac atg atc gtt ggc gca acg ttc ctg acc     1253
Ala Thr Asn Trp Ile Ala Asn Met Ile Val Gly Ala Thr Phe Leu Thr
            395                 400                 405

atg ctc aac acg ctg ggt aac gcc aac acc ttc tgg gtg tat gcg gct     1301
Met Leu Asn Thr Leu Gly Asn Ala Asn Thr Phe Trp Val Tyr Ala Ala
        410                 415                 420

ctg aac gta ctg ttt atc ctg ctg aca ttg tgg ctg gta ccg gaa acc     1349
Leu Asn Val Leu Phe Ile Leu Leu Thr Leu Trp Leu Val Pro Glu Thr
    425                 430                 435

aaa cac gtt tcg ctg gaa cat att gaa cgt aat ctg atg aaa ggt cgt     1397
Lys His Val Ser Leu Glu His Ile Glu Arg Asn Leu Met Lys Gly Arg
440                 445                 450                 455

aaa ctg cgc gaa ata ggc gct cac gat taa tctccccaag cttcctccc        1446
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Ile Gly Val Ile Ala Gly Ala Leu Pro Phe Ile Ala Asp Glu Phe Gln
        35                  40                  45

Ile Thr Ser His Thr Gln Glu Trp Val Val Ser Ser Met Met Phe Gly
    50                  55                  60

Ala Ala Val Gly Ala Val Gly Ser Gly Trp Leu Ser Phe Lys Leu Gly
65                  70                  75                  80
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Arg Lys Lys Ser Leu Met Ile Gly Ala Ile Leu Phe Val Ala Gly Ser
                85                  90                  95

Leu Phe Ser Ala Ala Ala Pro Asn Val Glu Val Leu Ile Leu Ser Arg
            100                 105                 110

Val Leu Leu Gly Leu Ala Val Gly Val Ala Ser Tyr Thr Ala Pro Leu
        115                 120                 125

Tyr Leu Ser Glu Ile Ala Pro Glu Lys Ile Arg Gly Ser Met Ile Ser
    130                 135                 140

Met Tyr Gln Leu Met Ile Thr Ile Gly Ile Leu Gly Ala Tyr Leu Ser
145                 150                 155                 160

Asp Thr Ala Phe Ser Tyr Thr Gly Ala Trp Arg Trp Met Leu Gly Val
                165                 170                 175

Ile Ile Ile Pro Ala Ile Leu Leu Leu Ile Gly Val Phe Phe Leu Pro
            180                 185                 190

Asp Ser Pro Arg Trp Phe Ala Ala Lys Arg Arg Phe Val Asp Ala Glu
        195                 200                 205

Arg Val Leu Leu Arg Leu Arg Asp Thr Ser Ala Glu Ala Lys Arg Glu
    210                 215                 220

Leu Asp Glu Ile Arg Glu Ser Leu Gln Val Lys Gln Ser Gly Trp Ala
225                 230                 235                 240

Leu Phe Lys Glu Asn Ser Asn Phe Arg Arg Ala Val Phe Leu Gly Val
                245                 250                 255

Leu Leu Gln Val Met Gln Gln Phe Thr Gly Met Asn Val Ile Met Tyr
            260                 265                 270

Tyr Ala Pro Lys Ile Phe Glu Leu Ala Gly Tyr Thr Asn Thr Thr Glu
        275                 280                 285

Gln Met Trp Gly Thr Val Ile Val Gly Leu Thr Asn Val Leu Ala Thr
    290                 295                 300

Phe Ile Ala Ile Gly Leu Val Asp Arg Trp Gly Arg Lys Pro Thr Leu
305                 310                 315                 320

Thr Leu Gly Phe Leu Val Met Ala Ala Gly Met Gly Val Leu Gly Thr
                325                 330                 335

Met Met His Ile Gly Ile His Ser Pro Ser Ala Gln Tyr Phe Ala Ile
            340                 345                 350

Ala Met Leu Leu Met Phe Ile Val Gly Phe Ala Met Ser Ala Gly Pro
        355                 360                 365

Leu Ile Trp Val Leu Cys Ser Glu Ile Gln Pro Leu Lys Gly Arg Asp
    370                 375                 380

Phe Gly Ile Thr Cys Ser Thr Ala Thr Asn Trp Ile Ala Asn Met Ile
385                 390                 395                 400

Val Gly Ala Thr Phe Leu Thr Met Leu Asn Thr Leu Gly Asn Ala Asn
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Thr Phe Trp Val Tyr Ala Ala Leu Asn Val Leu Phe Ile Leu Leu Thr
            420                 425                 430
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Leu Trp Leu Val Pro Glu Thr Lys His Val Ser Leu Glu His Ile Glu
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Arg Asn Leu Met Lys Gly Arg Lys Leu Arg Glu Ile Gly Ala His Asp
    450                 455                 460
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